

CONTRIBUTIONS TO THE RECORDS OF *EUCALYPTUS* L'HERITIER IN SOUTH AUSTRALIA

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SUMMARY

The nomenclature of three species of *Eucalyptus*—*E. incrassata* Labill., *E. odorata* Behr ex Schldl. and *E. pyriformis* Turcz., is discussed while alterations are described to the recorded occurrence of another five species.

INTRODUCTION

With such a large genus of six hundred species it is expected that nomenclatural changes will be proposed from time to time. The likelihood of this happening is increased if the *holotype* is relatively imperfect or inaccessible when it is located overseas. In each of the three species in which nomenclatural changes are proposed, difficulty was being experienced in identifying specimens with current floras.

Although the type specimen of only one of the three species was seen, a good photograph was obtained of the second species, both by courtesy of Dr. H. Eichler of the State Herbarium. Mr. J. H. Willis of the National Herbarium, Melbourne, in a personal communication reported on the third species, that he had "looked up the type material of Mueller's *E. youngiana* from Ooldca and Victoria Spring, and it corresponds perfectly to this squat fruited eastern plant".

This is in agreement with Mr. B. Royce and Mr. P. Wilson of the Perth Herbarium who jointly examined the published descriptions of *E. pyriformis* Turcz., *E. erythrocalyx* Oldf. & F. Muell. ex F. Muell. and *E. pyriformis* var. *elongata* J. H. Maiden.

They consider that these are conspecific which is supported by the fact that the taxon with the tapered fruit is endemic to Western Australia.

1. *Eucalyptus incrassata* Labill. in Nov. Holl. P. ii., 12, t.150 (1806).
Eucalyptus costata F. Muell. ex F. Muell. Trans. Vic. Inst. 33 (1855).
Eucalyptus incrassata var. *costata* F. Muell. N. T. Burbidge. Trans. Roy. Soc. S. Aust. 71: 150 (1947).

The puzzling feature in the original description is the omission of reference to ridges and in the somewhat schematic illustration which accompanied it. The pertinent part of the description in which no reference to ridges occurs is "calyx turbinatus, subangulatus, germini adnatus, ultra productus, subcampanulatus, operculum coriaceum". This can be translated as "calyx turbinate, subangular, joined to the ovary and extends beyond. Operculum leathery."

During a thirty year period a diligent search in the field in South Australia has failed to locate a significant population with smooth fruits. It is not surprising then that there is a formidable number of specimens with costate fruits in both the Perth and Adelaide Herbariums. This situation could be resolved only by an inspection of the type. Dr. H. Eichler, Keeper of the State Herbarium of South Australia, fortunately obtained a photograph of the type with an annotation by the Director of the Florence Herbarium that the handwritten label agreed with the handwriting of the author, Labillardière.

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The type locality is "Nova Hollandia, ora austro-occidentalis" or south west coast of Australia. This agrees with the fact that Labillardière landed at Esperance Bay along the southern coast of Western Australia during December 1792. A full account appears in "Land Flora, The Archipelago of the Recherche" J. H. Willis Aust. Geog. Soc. Rept. 1/3, 3-4, (1953).

A confirmatory annotation by the Director of the Florence Herbarium refers to the presence of small ridges on the torus and these can be seen quite clearly in the enlargement, plate 2. The occasional collections that can be made from individuals with only faint ridges to almost smooth is well within the range of variability reasonably expected where the bulk of individuals have fruits which are firmly ridged.

It is considered then that there is adequate support for the exclusion of consideration of a smooth-fruited form *E. incrassata* Labill., *sensu strictu*, and the erection of two varieties.

E. incrassata Labill. var. *incrassata*.

E. incrassata var. *angulosa* (Schau.) Benth.

The relationship between the varieties can be quite close as intergrades occur between the somewhat smaller, less ridged and sculptured fruits of var. *incrassata* to the heavily ridged with sharp edges or corrugated thick walls of the usually larger fruits of var. *angulosa* Benth.

Selected specimens of *E. incrassata* var. *incrassata* in AD include:—

Eyre Peninsula M. E. Phillips 1965 Cleve; R. L. Specht 1950 Section 21 Hundred Murlong, 105 km north of Port Lincoln; H. C. Robjohn 1967 Sir Joseph Banks group of islands; J. B. Cleland 1963 Lock.

Yorke Peninsula R. L. Specht 1950 Port Julia.

Central District N. W. Donner 1963 Reeves Plains.

Murray Mallee J. W. Green 1950 Moorlands; R. L. Specht 1960 Hundred Pebbings 80 km S.S.E. of Renmark; E. H. Ising 1958 Murray Bridge; R. L. Specht 1960 Wanbi Research Centre.

South East D. Hunt 1962 Bordertown.

Western Australia R. Parsons 1967 Madura.

Selected specimens from Perth Herbarium.

C. A. Gardner 1924 Hopetoun; R. S. Royce 1956 West Cape Howe; A. Main 1960 along track to Streich Mound; A. S. George 1964 Porongorup Range.

Selected specimens of *E. incrassata* var. *angulosa* in AD include:—

Eyre Peninsula, D. J. E. Whibley 1958 Boston Point; K. D. Rohrlach 1961 West Point; D. J. E. Whibley 1958 Yeclanna; J. B. Cleland 1964 Wanilla.

Lakes of Lower Murray, R. D. Williams 1959 Meningie; C. D. Boomsma 1967 Goolwa.

Southern Districts, R. Schodde, Waitpinga.

2. *E. normantonensis* Maiden & Cambage.

This species was recorded for South Australia in the supplement to "J. M. Black's Flora" by H. J. Eichler on p. 236 on the basis of a single specimen J. B. Cleland 1933 Ernabella, Musgrave Ranges. The previous record of this species was qualified by:

"the assumption that the specimen recorded by Black (1952) as *E. largiflorens* var. *xanthophylla* was correctly determined. Its leaves are rather broad (2 cm)."

On inspection, the specimen was seen to have wide thick coriaceous leaves and was referred to *E. intertexta* forma, R. T. Baker.

The position now is that the record for this species should be cancelled for South Australia and it is unlikely to be reinstated, as this species is typical of the northern tropical regions.

3. *E. odorata* Behr ex Schldl.

This is a preliminary note resulting from an examination of the *holotype* HAL 17754, but in the absence of the types of any of the described varieties. The rather vague locality of the *holotype* was "Aldenhoven Estate" and a search of the old land title of the estate showed that it consisted of four parcels of land in the Barossa Valley distributed from Angaston to Fords, a distance of 20 miles. An inspection of each parcel showed that the property at Angaston still supports exclusively an uncleared woodland of *E. camaldulensis*, whilst *E. odorata* still occurs either on or nearby the other three. Specimens recently collected from these compare favourably with the *holotype*.

A striking difference in maximum leaf width between this and the wide leaved specimens from the western slopes of the foothills of the Mount Lofty Ranges was recorded without further comment by Boomsma, Trans. Roy. Soc. S. Aust. 83: 197 (1960). An extension to the occurrence of the wide leaved taxon is now recorded from Bordertown to Western Flat and Wolseley in the South East.

A comparison of the maximum leaf width per mounted sheet in the Woods and Forests Department Herbarium, South Australia, is as follows:—

	<i>No. of specimens</i>	<i>Maximum Width</i> <i>mm</i>
Wide leaved specimens	27	32 ± 1
Typical leaved specimens	29	18 ± 2
Narrow leaved specimens	33	12 ± 1

It would appear that the striking difference of width of the wide leaved specimens in conjunction with its comparatively restricted field distribution justifies the recognition of a varietal status, but the type specimens of other described varieties would be necessary to resolve the situation.

4. *E. pachyphylla* F. Muell.

A single definite collection of this stunted mallee species has been made by R. B. Major in 1966 on a silcrete rise during a geological survey in the Victoria Desert at Long. 129° 24' E. Lat. 27° 56' S. The specimen is lodged in the Woods and Forests Department Herbarium, South Australia.

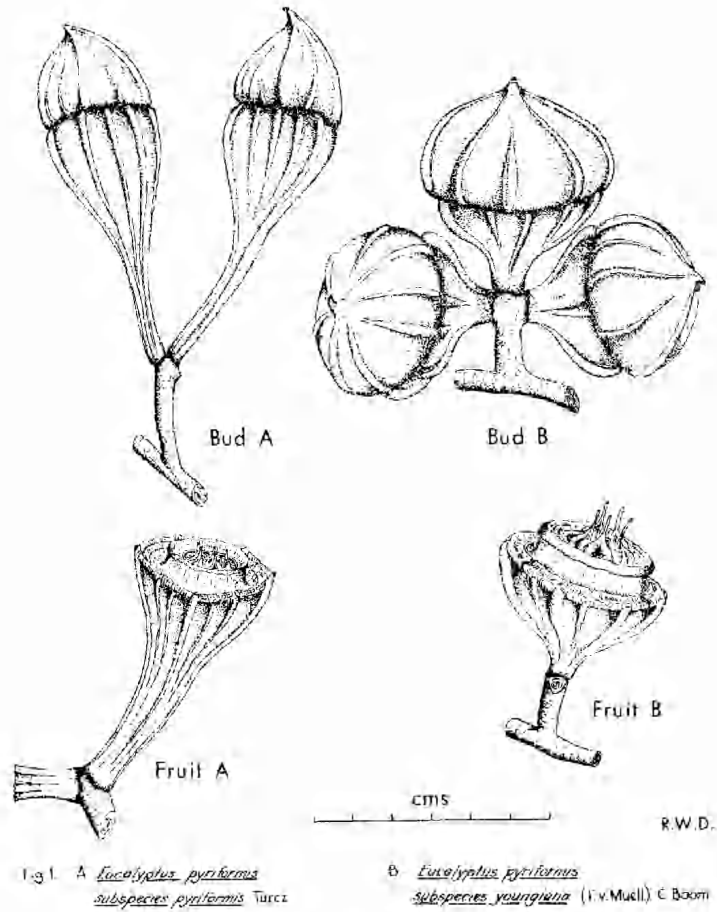
5. *E. pileata* Blakely.

Mr. L. A. S. Johnson in a personal communication to Mr. D. Symon points out that this species has a characteristic pileate bud and that South Australian material is not in agreement with that from the type locality in Western Australia. Specimens of South Australian origin were then forwarded to Sydney Herbarium in early 1966 for determination.

6. *E. pyriformis* Turcz. Bull. Soc. Nat. Moscow xxii., pt. 2, 22 (1849).

E. erythrocalyx Oldf. & F. Muell. ex F. Muell. (1860).

E. pyriformis var. *elongata* Maiden (1914).



For some time two superficially similar large fruited mallees have been recognised as *E. pyriformis* var. *elongata* Maiden, and *E. pyriformis* Turcz., respectively.

That two taxa are justified is suggested by the constant elongate torus, with shallow furrows tapering into the long pedicel in the one from Western Australia, contrasting with the abrupt short pedicel to the squat torus with deep furrows, in the one from South Australia.

Mr. P. Wilson, Botanist, Perth Herbarium (private communication) has pointed out that specimens from the north of Perth, in particular from Wongan Hills, have long pedicels fully in agreement with that of the original description. Further, in a letter by the collector of the type, Drummond, to Hooker and published in 1853 in the *Journal of Botany* by Hooker, the locality of Wongan Hills is mentioned and could therefore constitute the type locality. Mr. P. Wilson records in a private communication "The original description of *E. erythrocalyx* agrees with that of the material found in the Wongan Hills and Three Springs areas and is probably conspecific and convarietal with *E. pyriformis*."

It is interesting to note that so far no record has been made of a specimen from South Australia similar to that of the original description of *E. pyriformis*. Instead there is an abundance of the squat budded form which extends well into inland Western Australia at Laverton, as well as Israelite Bay on the Great

Australian Bight. It is known for certain that a collection of the squat budded form MEL 31296 was made by Mr. Jess Young, a member of Giles 4th expedition in 1875, from a locality given as Queen Victoria Spring, Western Australia, which is two hundred miles inland at $30^{\circ} 25' S.$ Lat. and $123^{\circ} 35' E.$ Long. Less than one hundred miles inland at Ooldea in South Australia a second collection MEL 31297 was made and the label is in the handwriting of Mrs. Ann Richards.

The label reads as follows: "A few specimens of *Oldia* large flowering mallee. I begged these for you, but they are such poor things I fear they will be of no use."

"Should we be here next winter, will try to get some good specimens."

Mr. J. H. Willis points out (in a personal communication) that the specimen MEL 31297 was probably collected by Police Trooper Richards, her husband, who acted as a guide for Giles in March 1875 en route to Ooldea.

The actual year of collection is uncertain, however, as Richards had been to Ooldea previously.

In considering the shape of the buds of the two taxa, one tapered, the other squat, coupled with the fact that the main occurrence of each taxon is geographically distinct, a subspecific rank is proposed.

E. pyriformis Turcz. subsp. *pyriformis*.

E. pyriformis subsp. *youngiana* (F. Muell.) C. Boom. basionym *E. youngiana* F. Muell. *Pragm. Phyt. Austral. x.*, 5 (1876).

The selected specimens of *E. pyriformis* subsp. *youngiana* in the AD were all collected from the far western arid region of South Australia. They include:— N. B. Tindale 1934 Ooldea; D. Symon 1962 Cheesman Peak; T. E. N. Lothian 1964 43 km. west of Tallaringa Well; 1967 10 km. west of Emu; O. H. Turner 1965 Maralinga. The illustrations were made from AD 96749222, Ooldea; and 96801936 Cult. Waite Agric. Res. Inst.

7. *E. striatocalyx* W. F. Fitzg. was identified by L. A. S. Johnson in 1965 as occurring in South Australia from specimens forwarded to him by D. Symon. It was recorded in corrigenda and addenda to the Supplement to "J. M. Black's Flora of South Australia" by H. J. Eichler, 1966. Both before and since then, it has been collected sparingly in several dispersed localities giving it a wide potential distribution, stretching from the Transcontinental Railway northwards to the Musgrave Ranges, and perhaps beyond, and westwards to Western Australia. In a personal communication to Mr. D. Symon, in Sept. 1965, L. A. S. Johnson remarks that "this is a new record for South Australia and a most interesting extension of its range. This species, thought for a long time to be rare and confined to the Cue-Nannine area in Western Australia, has in recent years been found in several places as far as 59 miles north of Kalgoorlie."

The type locality as recorded by W. V. Fitzgerald, is Milly's Soak four miles east of Nannine. With permanent water within root reach it is not surprising that the associated trees are *E. microtheca* and *E. camaldulensis*, and that it is able to reach a height of 10 to 12 metres, and a diameter of 45 cm. In South Australia it is reduced to a mallee, or small tree, of a proportionate size to the accompanying vegetation such as *Acacia aneura*, *E. pyriformis* subsp. *youngiana*, *E. terminalis*, *Pittosporum phylliraeoides*, and *Triodia* sp.

Selected specimens:—

ADW Symon 1965, Commonwealth Hill Station; Woods & Forests Department S.A., J. Johnson 1955, Musgrave Ranges; O. H. Turner 1960, Maralinga; J. Johnson 1966, Loch Arline Outstation (Commonwealth Hill Station); R. B. Major 1966, Long. $129^{\circ} 30' E.$, Lat. $27^{\circ} 58' S.$

8. *E. viridis* R. T. Baker.

The occurrence of this species in South Australia has been either queried or confused with *E. odorata* var. *angustifolia* Blakely, but a number of recent collections have been made of it, all from the one large elevated region of the North East Flinders Ranges and Mainwater Pound, Gammon Ranges. Itemised localities of recent collections include; Mainwater Pound, J. Johnson; and Mt. Patawarta, K. Mack; S.A. Woods and Forests Department Herbarium, and Mt. McKinley at 3000' altitude, D. Symon, ADW 31 293.

The identification has been confirmed by J. H. Willis, of the National Herbarium of Victoria despite the dull to subglaucous mature foliage. Fortunately the linear-lanceolate leaves of seedlings are in good agreement with the species description.

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